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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,882

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Kazutoshi Aida

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4245

7590

07/24/2006

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EXAMINER

ABRAHAM, ESAW T

ART UNIT

PAPER NUMBER

2133

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/664,882

Applicant(s)

AIDA ET AL.

Examiner

Esaw T. Abraham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 8 is/are rejected.
- 7) ☒ Claim(s) 2-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/22/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**Final office action**

**Response to Amendment**

Applicants argument with respect to original claims 1-8 filled in 04/24/06 have been fully considered but they are not persuasive. Therefore, the response in the first office action made on 01/24/06 stands active.

**RESPONSE TO APPLICANT'S REMARKS**

The applicant argues that the prior art of record (Marukawa) does not teach or failed to teaches generating an error signal and adjusting the quality of the analog signal so as to minimize the error. However, the argument is moot since Marukawa teaches that an FIR filter for filtering the digital reproduced signal with the use of an adaptive equalization coefficient; an adaptive equalization coefficient setting (adjusting) device for equalizing (adjusting) the impulse response of the digital reproduced signal with the impulse characteristic of a partial response defined by (a, b, b, a) and determining the adaptive equalization coefficient to release the digital reproduced signal filtered by the FIR filter as an equalized digital reproduced signal (see col. 4, lines 55-43) and Marukawa further teaches that the digital reproduced signal processing apparatus of the first mode is modified in that the adaptive equalization coefficient setting device is provided with (a, b, b, a) type of the impulse response or partial response which is a target for equalization and arranged to timely update the adaptive equalization coefficient for varying the values a and b in (a, b, b, a) so that the square mean of a difference between the temporal data judgment signal from the partial response

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temporal judgment and the equalized digital reproduced signal is minimum, whereby a desired characteristic of the partial response can be obtained (see col. 5, lines 27-35).

The examiner advice the applicant to refer to Marukawa's adapting equalization coefficient setting device for equalizing coefficient setting (adjusting) the analog signals similar to the claim language in which the applicant uses the expression "adjusting a quality of analog signals" for what the Marukawa uses as "setting analog signals".

Therefore, the application of the prior art in relation to the claimed invention is appropriate.

#### **Status of claims**

1. Claims 1-8 remain pending.

#### ***Claim objections***

2. Claim 3 is objected to because of the following informalities:

- a) Please change the phrase "the error detecti n means " to ---the error detecting means" (see claim 3 line 5).

- b) Please change the phrase "tap output f" to ---tap outputs of---( see claim 3 line 5)

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere CO.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marukawa (U.S. PN: 6,836,511).

**As per claims 1 and 8:**

Marukawa teach a digital reproduced signal processing apparatus for reading out a signal from a recording medium of a digital recording apparatus comprising: an analog/digital converter for converting the analog reproduced signal; an FIR filter for filtering the digital reproduced signal with the use of an adaptive equalization coefficient; an adaptive equalization coefficient setting device (a target holding means) for equalizing the impulse response of the digital reproduced signal with the impulse characteristic of a partial response defined by (a, b, b, a) and determining the adaptive equalization coefficient to release the digital reproduced signal filtered by the FIR filter as an equalized digital reproduced signal; a phase comparator for detecting a phase error signal from the digital reproduced signal or the equalized digital reproduced signal; a partial response temporal judgment device responsive to the output signal of the FIR filter for producing and feeding a temporal data judgment signal to the adaptive equalization coefficient setting device and the phase comparator and a Viterbi decoder

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for decoding the equalized digital reproduced signal released from the FIR filter to a data for judgment (See col. 4, lines 46-67). Marukawa **does not explicitly teach** a target holding means (LMA [equalization target]) for holding a value signals. **However**, Marukawa teaches that adaptive equalization coefficient setting device (6) requires a temporal judgment level which is used to calculate the adaptive equalization coefficient with the use of an algorithm of least means square (referred to as LMS hereinafter) and the LMS provides a feedback function for minimizing the square error between desired response and transmission line response which Marukawa is basically teaching the functionality of the target holding means (referred in the applicants specification as equalization targets with in the LMS block). Therefore, it would have been obvious at the time the invention was made to one of ordinary skill in the art to employ a holding means or LMS blocks for holding target values as taught by Marukawa. **This modification** would have been obvious because a person having ordinary skill in the art in order to enhance reading performance of signal processing which is significantly reduced in the circuit arrangement (see col. 6, lines 30-35).

#### **Allowable subject matter**

4. Claims 2-7 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten independent from including all of the limitation of the base claim and any intervening claims.

#### **As per claim 2:**

The claimed invention comprises a filter receiving output of the analog-to-digital conversion means, the filter having a taps of which coefficients are variable; and error

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minimization means for updating the tap coefficients of the filter so that an error between an output of the filter and the output of the target holding means is minimized which the prior art do not teach or render obvious.

Claims 3-7, which are directly or indirectly dependents of claim 2 are also objected.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.


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If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Esaw Abraham

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